U.S. FISH AND WILDLIFE SERVICE
SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: *Cicurina wartoni*

COMMON NAME: Warton cave meshweaver

LEAD REGION: Region 2

INFORMATION CURRENT AS OF: October 2005

STATUS/ACTION:

___ Species assessment - determined species did not meet the definition of endangered or threatened under the Act and, therefore, was not elevated to Candidate status
___ New candidate
X Continuing candidate
___Non-petitioned
X Petitioned - Date petition received: May 11, 2004
_ 90-day positive - FR date:
_ 12-month warranted but precluded - FR date:
_ Did the petition requesting a reclassification of a listed species?

FOR PETITIONED CANDIDATE SPECIES:
a. Is listing warranted (if yes, see summary of threats below)? Yes
b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? Yes
c. If the answer to a. and b. is "yes", provide an explanation of why the action is precluded.
We find that the immediate issuance of a proposed rule and timely promulgation of a final rule for this species has been, for the preceding 12 months, and continues to be, precluded by higher priority listing actions. During the past 12 months, almost our entire national listing budget has been consumed by work on various listing actions to comply with court orders and court-approved settlement agreements, meeting statutory deadlines for petition findings or listing determinations, emergency listing evaluations and determinations, and essential litigation-related, administrative, and program management tasks. We will continue to monitor the status of this species as new information becomes available. This review will determine if a change in status is warranted, including the need to make prompt use of emergency listing procedures. For information on listing actions taken over the past 12 months, see the discussion of "Progress on Revising the Lists," in the current CNOR which can be viewed on our Internet website (http://endangered.fws.gov/).
___ Listing priority change
Former LP: ___

New LP: ___

Date when the species first became a Candidate (as currently defined): Nov. 15, 1994

___ Candidate removal: Former LP: ___

___ A – Taxon is more abundant or widespread than previously believed or not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

___U – Taxon not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status due, in part or totally, to conservation efforts that remove or reduce the threats to the species.

___ F – Range is no longer a U.S. territory.

___ I – Insufficient information exists on biological vulnerability and threats to support listing.

___ M – Taxon mistakenly included in past notice of review.

___ N – Taxon does not meet the Act's definition of "species."

___ X – Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Arachnid, Dictynidae

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Texas

CURRENT STATES/ COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE: Travis County, Texas

LAND OWNERSHIP: The cave is currently privately owned. Some of the adjacent property is owned by City of Austin, Balcones Canyonlands Preserve.

LEAD REGION CONTACT: Susan Jacobsen, 505-248-6641

LEAD FIELD OFFICE CONTACT: Austin Ecological Services Field Office, Bill Seawell, 512-490-0057

BIOLOGICAL INFORMATION

Species Description: This meshweaver (spider) is eyeless, unpigmented, known only from female specimens, and is 0.25 inches long (Gertsch, 1992).

Taxonomy: This meshweaver (spider) is a member of the family Dictynidae, and a member of the subgenus *Cicurella*. It was first collected in 1990 by James Reddell, Marcelino Reyes, and Lee Sherrod and in 1992 described by Gertsch. Members of this subgenus are mostly small forms derived from eight-eyed spiders and are progressively losing or have lost their eyes (Gertsch 1992). Genetic assessment studies by Dr. Marshall Hedin and Dr. Pierre Paquin were conducted during 2004-2005 on three other species of cave dwelling blind *Cicurina* occurring in southern Travis and northern Hays counties, Texas to develop genetic assessment techniques for definitive species-level identification of immature specimens of blind *Cicurina* spiders (Hedin

and Paquin 2005). Unfortunately, owners of the only known cave for *C. wartoni* did not grant access to the researchers, and the species could not be included in the study. The best available scientific information on the taxonomy of this species is from Gertsch (1992), and based on that information we continue to consider the Warton cave meshweaver to be a valid taxon.

Habitat/Life History: This meshweaver (spider) is sedentary and spins a small web in and under detritus and small rocks and preys on other small invertebrates. Spiders in caves act as predators (Gertsch 1992). Cicurina sp. prey on immature Speodesmus sp. millipedes (Reddell 1994). This eyeless, troglobitic spider only inhabits caves or other geological features in rocks known as karst. The term "karst" refers to a type of terrain that is formed by the slow dissolution of calcium carbonate from limestone bedrock by mildly acidic groundwater. This process creates numerous cave openings, cracks, fissures, fractures, and sinkholes, and the bedrock resembles a honeycomb.

Historical and Current Range/Distribution: A small, shallow cave (Pickle Pit) in Travis County, Texas, is the only known location of this species. Caves within the vicinity of Pickle Pit have been extensively surveyed, and Warton's cave meshweaver has not been found in any other feature. Caves in the Austin area are possibly the most extensively biologically studied in the United States (Reddell 1994).

Population Estimates/Status: There are no population estimates for the species or recent status assessments.

THREATS

A. The present or threatened destruction, modification, or curtailment of its habitat or range. This species is known from only one small cave in northwest Travis County. The species and its habitat are subject to threats from fire ants and possible habitat degradation from a subdivision. Site plans for development of the property were approved by the City of Austin in 1987. The Service issued a biological opinion on this project to the Corps of Engineers on December 30, 1994. The project description was modified from the 1987 plan so that development was set back 250-500 feet from the northern side of the cave, while the area to the south remained undeveloped. Although this configuration provides some protection for the cave, it may not fully protect foraging cave crickets or protect all of the surface and subsurface drainage. Cave crickets have been shown to be important to the ecology of karst features and the karst invertebrates that inhabit them by providing primary sources of nutrients.

This cave preserve (i.e., undeveloped area surrounding the cave) is contiguous with the Balcones Canyonlands Preserve. The cave has been gated to prevent human access, while allowing continued air flow and nutrient input. At this time, however, there is inadequate fencing around the Balcones Canyonlands Preserve for the bird habitat and there are entryways in the cave preserve area that allow access to the cave entrance from adjacent private Service staff visited the site on two occasions in early 2001 and found that construction of the road and several homes had been completed on the northern side of the cave preserve. Runoff from the road and other toxic runoff from the development, and unauthorized public access pose threats to this

species.

This species is also a covered species under the Balcones Canyonlands Preserve Regional Habitat Conservation Plan, but as yet, no management actions have been implemented through the plan to conserve the species.

B. Overutilization for commercial, recreational, scientific, or educational purposes. Not known to be a factor threatening this meshweaver.

C. Disease or predation. Imported fire ants (*Solenopsis invicta*) are voracious predators, and there is evidence that overall arthropod diversity drops in their presence (Vinson and Sorensen 1986; Porter and Savignano 1990). Elliott (1992) noted that fire ant activity has increased dramatically in Central Texas since 1989. Red fire ants are known to exist on the tract where the cave is located and pose a significant threat to karst invertebrates, including this meshweaver. A site visit to the cave containing this meshweaver, by Service employees, consultants to the landowner, and Corps of Engineers personnel in summer 1993, revealed an active fire ant mound 30 feet east of the cave entrance in a small clearing.

D. The inadequacy of existing regulatory mechanisms. Currently, no state laws protect this meshweaver or directly address protection of its habitat. Cave protection laws of the City of Austin provide for a 100 foot buffer zone around significant aquifer recharge features and Texas Commission on Environmental Quality (TCEQ) rules generally affect only significant recharge features. The cave containing this species does not receive significant recharge (Mike Warton, PBS&J, pers. comm., 1993) and would not likely qualify for protection under the City of Austin or TCEQ regulations. Terrestrial invertebrates are not included on Texas Parks and Wildlife Department (TPWD) list of threatened and endangered species. The TPWD regulations do not contain provisions for protecting habitat of any listed species.

As part of a settlement agreement to an unrelated lawsuit, reached in 2005, the cave and the undeveloped land surrounding it will be transferred to the City of Austin. The City plans to manage the property, which adjoins a portion of the Balcones Canyonlands Preserve, to conserve the meshweaver, which is covered under Balcones Canyonlands Regional Habitat Conservation Plan. Measures expected to be implemented include fencing, periodic surveillance, revegetating man-made openings with native plants, removal of any trash dumps, and fire ant control.

In 2001, the listing priority for this species was elevated to a 2 because the conservation agreement had not been completed and implemented and because development on adjacent property was imminent. This development has since been completed, and the threats that resulted from the close proximity of this development still remain. The cave has been gated to prevent unauthorized human access and deter vandalism and trash dumping, while allowing continued air flow and nutrient input. However, the cave gate may alter the natural flow of surface water, nutrients, and air into the cave. The nearby development may have some adverse effects on the cave ecosystem from pesticide use and contaminated runoff on the surface area used by cave crickets and possibly by contaminated runoff entering the cave. Recommended management (including fire ant control, complete fencing) is not yet in place to adequately

protect this only known location of the species. Also, as part of the reasonable and prudent measures, the preserve which also contains an endangered songbird is supposed to be completely fenced to prohibit human entry. The perimeter of this preserve is the back edge of private lots, many of which have gates in them installed by landowners, thus the fence is not adequate to prohibit entry into the preserve. Controlling access is needed to reduce the possibility of vandalism of the cave gate, entry into the cave, disturbance of vegetation, dumping and other unauthorized activities, and toxic contamination.

E. Other natural or manmade factors affecting its continued existence. Although many caves in the Austin metropolitan area have been subject to extensive vandalism and trash dumping, the cave gate should help deter these activities. Trash dumping can increase fire ant problems, attract other nonnative predators, and possibly serve as a source of contaminants. There has been trash dumping in areas around the cave in the past. Toxic materials left in materials dumped in the area and possibly deliberate dumping of toxic materials through the cave gate could be problems. Fencing around the preserve area would further deter these activities, though complete fencing is not yet in place.

CONSERVATION MEASURES PLANNED OR IMPLEMENTED: Landowners agreed to preserve the cave as a part of a section 7 consultation with the Corps of Engineers in 1994. The area protected from development was set up for the golden-cheeked warbler, and there are no specific commitments for management for Warton's meshweaver. The planned transfer of this property to the City of Austin, would accomplish this and hopefully improve this commitment. The property will be managed by Balcones Canyonlands Preserve staff.

SUMMARY OF THREATS: The species is threatened by competition and predation by fire ants (factor C) and by destruction, modification, or curtailment of its habitat associated with trespassing and pollution from nearby development.

For species that are being removed from candidate status:
___Is the removal based in whole or in part on one or more individual conservation efforts that you determined met the standards in the Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE)?

LISTING PRIORITY

THREAT			
Magnitude	Immediacy	Taxonomy	Priority
High	**Imminent**	Monotypic genus	1
		Species	**2***
		Subspecies/population	3
	Non-imminent	Monotypic genus	4
		Species	5
		Subspecies/population	6

Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

Rationale for listing priority number:

Magnitude: Because of the single location, threats to the species from fire ants, pollution from activities in a nearby development, and trespassing and associated trash dumping, including the possibility of toxic dumping, and vegetation removal, near the feature, we consider the threat magnitude to be high.

Imminence: Fire ants are known to occur in the vicinity of the cave, and impacts to the cave from runoff and human activities are an imminent threat. Fire ants are in close proximity to the feature and are not being controlled. Fire ants are listed as a threat for every other listed karst invertebrate in Central Texas.

__X__ Have you promptly reviewed all of the information received regarding the species for the purpose of determining whether emergency listing is needed? Yes.

Is Emergency Listing Warranted? No. The cave has been gated to prevent human access, while allowing continued air flow and nutrient input. The City plans to manage the property, which adjoins a portion of the Balcones Canyonlands Preserve, to conserve the meshweaver, which is covered under Balcones Canyonlands Regional Habitat Conservation Plan. Measures expected to be implemented include fencing, periodic surveillance, revegetating man-made openings with native plants, removal of any trash dumps, and fire ant control.

DESCRIPTION OF MONITORING: No routine monitoring program for the species is currently in place. No monitoring for the species was conducted during the past year (Mike Warton, PBS&J, personal communication, 2005).

COORDINATION WITH STATES

Indicate which State(s) (within the range of the species) provided information or comments on the species or latest species assessment: None.

Indicate which State(s) did not provide any information or comments: Though asked for information, Texas Parks and Wildlife Department provided no information or comments on this species.

LITERATURE CITED

Elliott, W.R. 1992 (revised 1993). Fire Ants and Endangered Cave Invertebrates: A Control and

Ecological Study. Section 6 report prepared for the Texas Parks and Wildlife Department and the U.S. Fish and Wildlife Service.

Gertsch, W.J. 1992. Distribution patterns and speciation in North American cave spiders wit a list of the troglobites and revision of the cicurinas of the subgenus *Cicurella*. Pages 75-122 in: Texas Memorial Museum Speleological Monographs 3: Studies on the cave and endogean fauna of North America II. Edited by James Reddell. 257 pp.

Hedin and Paquin. 2005. Genetic and morphological analysis of species limits in *Cicurina* spiders (Araneae, Dictynidae) from southern Travis and northern Hays counties, with emphasis on *Cicurina cueva* Gertsch and relatives. 2005 Final Report to the U. S. Fish and Wildlife Service.

Porter, S.D., and S.A. Savignano. 1990. Invasion of polygyne fire ants decimates native ants and disrupts arthropod community. Ecology. 71(6):2095-2106.

Reddell, James R. 1994. The cave fauna of Texas, with special reference to the western Edwards Plateau. In *The caves and karst of Texas, 1994 NSS Convention guidebook*, William R. Elliott and George Veni, eds., National Speleological Society, Huntsville, Alabama, pp. 31-49.

Vinson, S.B., and A.A. Sorensen. 1986. Imported Fire Ants: Life History and Impact. Texas Department of Agriculture. 1986. 28 pp.

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes, including elevations or removals from candidate status and listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all resubmitted 12-month petition findings, additions or removal of species from candidate status, and listing priority changes.

Approve: /s/ Rich McDonald 11/17/2005
Acting Regional Director, Fish and Wildlife Service Date

Concur: August 23, 2006
Director, Fish and Wildlife Service Date

Do not concur: _____
Director, Fish and Wildlife Service Date

Date of annual review: October 2005
Conducted by: Bill Seawell, Austin ES Office